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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,563	07/25/2003	Matthew Lewry	3001	5238
31424	7590	12/13/2004	EXAMINER	
BABCOCK IP LLC 24154 LAKESIDE DRIVE LAKE ZURICH, IL 60047			CHEN, SHIH CHAO	
			ART UNIT	PAPER NUMBER
			2821	

DATE MAILED: 12/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/627,563

Applicant(s)

LEWRY ET AL.

Examiner

Shih-Chao Chen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/21/03</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: sub reflector [24]. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: on page 2, lines 11-12, "the sub reflector and or waveguide" should be changed to --the sub reflector and/or waveguide--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4, 9-12, 15-17, 20, 22 and 25-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Knop et al. (U.S. Patent No. 6,107,973).

Regarding claim 1, Knop et al. teaches in figures 1-9 a reflector antenna, comprising: a reflector [10]; and a feed assembly [13a] centrally mounted on the reflector; the feed assembly [13a] having a hub [20] from which a waveguide [13] extends; a distal end of the waveguide flaring into a dielectric cone [12] which couples with a sub reflector [11] at a periphery of the sub reflector.

Regarding claim 2, Knop et al. teaches in figures 1-9 the antenna of claim 1, wherein the hub [20], the waveguide [13] and the sub reflector [11] are ultrasonically welded into a single integral component.

Regarding claim 3, Knop et al. teaches in figures 1-9 the antenna of claim 1, wherein an internal surface of the waveguide [13], except the dielectric cone [12], and a bottom surface of the sub reflector [11] are coated with a conductive material (See FIG. 3).

Regarding claim 4, Knop et al. teaches in figures 1-9 the antenna of claim 3, wherein the conductive material is one of copper, silver and gold.

Regarding claim 9, Knop et al. teaches in figures 1-9 a feed assembly for a reflector antenna, comprising: a waveguide [13] coupled at a proximal end to a hub [20]; the waveguide [13] flaring into a dielectric cone [12] at a distal end; the cone extending from a waveguide diameter to a sub reflector diameter (See FIG. 3); and a sub reflector [11] coupled to the cone [12] along a periphery of the sub reflector

Regarding claim 10, Knop et al. teaches in figures 1-9 the apparatus of claim 9, wherein the waveguide [13] is ultrasonically welded to the hub [20] and the sub reflector [11] is ultrasonically welded to the dielectric cone [12].

Regarding claim 11, Knop et al. teaches in figures 1-9 the apparatus of claim 9, wherein the interior surface of the waveguide [13], except the dielectric cone [12], and a bottom surface of the sub reflector [11] is surface coated with a conductive material.

Regarding claim 12, Knop et al. teaches in figures 1-9 the apparatus of claim 11, wherein the conductive material is one of copper, silver and gold.

Regarding method claims 15-17, the apparatus discussed above would perform the claimed method.

Regarding claim 20, Knop et al. teaches in figures 1-9 a feed assembly for a reflector antenna, comprising: a waveguide [13] with a proximal end and a distal end, the waveguide formed out of a dielectric material coated with a conductive material on an internal surface; a dielectric cone [12] extending from a waveguide radius at the distal end of the waveguide to a larger sub reflector radius (See FIG. 3); and a sub reflector [11] coupled to the sub reflector radius of the dielectric cone.

Regarding claim 22, Knop et al. teaches in figures 1-9 the assembly of claim 20, further including a hub [20] coupled to the proximal end of the waveguide [13].

Regarding claim 25, Knop et al. teaches in figures 1-9 the assembly of claim 20, wherein the waveguide [13] and the cone [12] are formed as a contiguous piece of dielectric material.

Regarding claim 26, Knop et al. teaches in figures 1-9 the assembly of claim 20, wherein the sub reflector [11] is formed out of a dielectric material coated on a bottom surface with a conductive material.

Regarding claim 27, Knop et al. teaches in figures 1-9 the assembly of claim 20 wherein the sub reflector [11] is attached to the sub reflector radius along a periphery of the sub reflector.

Regarding claim 28, Knop et al. teaches in figures 1-9 a reflector antenna, comprising: a dish shaped reflector [10] coupled to a feed assembly [13a] proximate a vertex area of the reflector; and the feed assembly having a waveguide [13] with a dielectric outer surface.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 5, 8, 13, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knop et al. (Cited above) in view of Kildal (U.S. Patent No. 4,963,878).

Knop et al. teaches every feature of the claimed invention in paragraph 4 except for the soft boundary; the conical reflecting surface; and the plurality of corrugations.

Kildal teaches in figures 1-7 the soft boundary (See Fig. 3); the conical reflecting surface [20]; and the plurality of corrugations [17].

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In view of the above statement, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the subreflector as shown in Knop et al. by using the subreflector having the soft boundary; the conical reflecting surface; and the plurality of corrugations as taught by Kildal in order to ensure that the electromagnetic wave are propagated along the surface regardless of whether the electrical field is tangential to the surface or is normally on it (See Abstract).

7. Claims 6-7, 18-19 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knop et al. (Cited above) in view of Sanford et al. (U.S. Patent No. 5,973,652).

Knop et al. teaches every feature of the claimed invention in paragraph 11 except for the radial choke.

Sanford et al. teaches in figures 1-4 the radial choke (See col. 3, lines 12-14).

In view of the above statement, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the subreflector as shown in Knop et al. by using the subreflector having the radial choke as taught by Sanford et al. in order to improve return loss and make the total reflection back into the feed tube very close to zero (See Abstract).

8. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Knop et al. in view of Kildal as applied to claim 13 above, and further in view of Sanford et al. (Cited above).

Knop et al. and Kildal teach every feature of the claimed invention in paragraph 6 except for the radial choke.

Sanford et al. teaches in figures 1-4 the radial choke (See col. 3, lines 12-14).

In view of the above statement, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the subreflector as shown in Knop et al. and Kildal by using the subreflector having the radial choke as taught by Sanford et al. in order to improve return loss and make the total reflection back into the feed tube very close to zero (See Abstract).

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shih-Chao Chen whose telephone number is (571) 272-1819. The examiner can normally be reached on Monday-Friday from 7 AM to 4:30 PM, First Fri. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shih-Chao Chen
Shih-Chao Chen

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Primary Examiner
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SXC
December 9, 2004